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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,464	03/31/2004	Todd B. Myers	884.B60US1	6373

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EXAMINER

PHAN, THIEM D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/815,464	Applicant(s) MYERS ET AL.	
	Examiner Tim Phan	Art Unit 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-68 is/are pending in the application.
- 4a) Of the above claim(s) 27-31 and 46-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 32-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicants' election of Species I, Claims 32-45, filed on 12/08/05 is acknowledged.

The Restriction mailed on 8/03/05 has been carefully reviewed and is held to be proper.

Applicants did not distinctly and specifically point out any logical error in the Restriction Requirement. Moreover, due to the lack of traversal on the merits, Applicants' election of Group I, claims 32-45, has been treated as an election without traverse.

Accordingly, Claims 27-31 and 46-68 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Groups, there being no allowable generic or linking claim.

The Restriction filed on 8/03/05 is hereby **made Final**.

Applicants are required to cancel these nonelected claims (27-31 and 46-68) or take other appropriate action.

An Office Action on the merits of Claims 32-45 now follows.

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicants' use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Currently, the Summary is missing. Appropriate correction is required.

Title

3. The following title is suggested: "Method of Embedding Passive Component Within Via".

Drawings

4. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because of unclear and confused elements indicated in the drawings such as elements 220, 241, 260 & 264 of Figure 2, etc ... Applicants are advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 39 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Applicants are requested to specifically delineate what is included and excluded by the term "memory device" (Claim 39) and the like language. Throughout the specification,

Applicants have failed to specifically define them.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 32-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Crockett et al (US 2002/0100612).

As applied to claim 32, Crockett et al teach a method for reducing the impedance within the reference within the printed circuit board:

- forming a via (Fig. 2, 250B) in a substrate (Fig. 2, 200); and
- forming an electrical component (Fig. 2, 240) in the via in the substrate.

As applied to claim 33, Crockett et al teach the forming at least of a portion of a resistor (Paragr. 26, line 4).

As applied to claim 34, Crockett et al teach the forming at least of a portion of a capacitor (Paragr. 26, line 4).

As applied to claims 35 and 45, Crockett et al teach the forming at least of a portion of a core or inductor or a transformer (Paragr. 26, line 4).

As applied to claim 36, Crockett et al teach the forming of a resistor (Paragr. 26, line 4).

As applied to claim 37, Crockett et al teach the forming of a core or inductor (Paragr. 26, line 4).

As applied to claim 38, Crockett et al teach the forming at least of a portion of a memory device (Paragr. 26, line 4).

As applied to claims 40 and 41, Crockett et al teach the forming of a passive electrical component (Paragr. 26, line 4).

As applied to claims 42-44, Crockett et al teach the forming of an electrical component (Fig. 3A-C, 240; Paragr. 26, line 4) embedded in a via (Fig. 3A-C, 250B).

The limitations of the claims "...a capacitor further comprising: ... an inner cylindrical portion (or a first curved portion) ... an outer via portion (or a second curved portion)" are considered to be of a claimed article wherein the process for embedding an electric component in a via operates so this manner of operation does not distinguish over the process of Crockett et al, and Crockett et al at a minimum suggest the claimed method invention.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 42-44 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Crockett et al in view of Figueroa et al (US 6,446,317) or vice versa.

As applied to claim 42, Crockett et al teach a method for reducing the impedance within the reference within the printed circuit board including the embedding of capacitor (Fig. 3A-C, 240) in the via (Fig. 3B, 250B), which reads on applicants' claimed invention; except for describing a capacitor configuration, which is well known in the art.

Figueroa et al teach a method of fabricating a hybrid capacitor embedded in a via, comprising:

- an inner cylindrical portion (Fig. 4, 406); and
- an outer via portion (Fig. 4, 404) substantially surrounding the inner cylindrical portion.

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the two teachings by applying the detailed description of the capacitor, as taught by Figueroa et al, to the method of embedding the capacitor in the via of Crockett et al in order to have a clearer picture of a capacitor.

As applied to claim 43, Crockett et al teach a method for reducing the impedance within the reference within the printed circuit board including the embedding of capacitor of curvature shape (Fig. 3B, 240) in the via (Fig. 3B, 250B), which reads on applicants' claimed invention; except for describing a curved capacitor configuration, which is well known in the art.

Figuerola et al teach a method of fabricating a hybrid capacitor embedded in a via, comprising:

- a first portion (Fig. 4, 406); and
- a second portion (Fig. 4, 404) spaced from the first portion by a dielectric (Fig. 4, 408).

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the two teachings by applying the detailed description of the capacitor, as taught by Figuerola et al, to the method of embedding the curved capacitor in the via of Crockett et al in order to have curved portions of the curved capacitor with varying dielectric thickness.

As applied to claim 44, Crockett et al teach a method for reducing the impedance within the reference within the printed circuit board including the embedding of capacitor of curvature shape (Fig. 3B, 240) in the via (Fig. 3B, 250B), which reads on applicants' claimed invention; except for describing a curved capacitor configuration, which is well known in the art.

Figuerola et al teach a method of fabricating a hybrid capacitor embedded in a via, comprising:

- a first portion (Fig. 4, 406); and
- a second portion (Fig. 4, 404) spaced from the first portion by a dielectric (Fig. 4, 408),

wherein the first portion and the second portion are portions of a via formed by insulating (Fig. 4, 408) a first portion of the via from a second portion of the via.

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the two teachings by applying the detailed description of the capacitor, as taught by Figueroa et al, to the method of embedding the curved capacitor in the via of Crockett et al in order to have curved portions of the curved capacitor with insulating dielectric.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 571-272-4568. The examiner can normally be reached on M - F, 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Art Unit: 3729

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tim Phan
Examiner
Art Unit 3729

tp
February 14, 2006



A. DEXTER TUGBANG
PRIMARY EXAMINER